

Release notes for ENDF/B Development n-063_Eu_151
evaluation

ENDF
B-VII.dev

April 26, 2017

- checkr Warnings:

1. A previous error halted parsing of the current section
MAT=6325, MF= 1, MT=451 (1): Parsing stopped

```
ERROR(S) FOUND IN MAT=6325, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER 97 TO 144
```

- checkr Errors:

1. A variable is outside the allowed ENDF range
MAT=6325, MF= 1, MT=451 (0): Variable range

```
ERROR(S) FOUND IN MAT=6325, MF= 1, MT=451
MOD = 1 OUT OF RANGE 0 - 0 RECORD NUMBER 97
```

2. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 2, MT=151 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=6325, MF= 2, MT=151
SECTION 2/151 NOT IN DIRECTORY RECORD NUMBER 146
```

3. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 1 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 1
SECTION 3/ 1 NOT IN DIRECTORY RECORD NUMBER 646
```

4. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 2 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 2
SECTION 3/ 2 NOT IN DIRECTORY RECORD NUMBER 724
```

5. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 4 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 4
SECTION 3/ 4 NOT IN DIRECTORY RECORD NUMBER 748
```

6. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 16 (0): Directory (b)

```
ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 16
SECTION 3/ 16 NOT IN DIRECTORY RECORD NUMBER 771
```

7. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 17 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 17
SECTION 3/ 17 NOT IN DIRECTORY RECORD NUMBER 781

8. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 22 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 22
SECTION 3/ 22 NOT IN DIRECTORY RECORD NUMBER 788

9. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 28 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 28
SECTION 3/ 28 NOT IN DIRECTORY RECORD NUMBER 797

10. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 51 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 51
SECTION 3/ 51 NOT IN DIRECTORY RECORD NUMBER 806

11. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 52 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 52
SECTION 3/ 52 NOT IN DIRECTORY RECORD NUMBER 829

12. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 53 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 53
SECTION 3/ 53 NOT IN DIRECTORY RECORD NUMBER 851

13. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 54 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 54
SECTION 3/ 54 NOT IN DIRECTORY RECORD NUMBER 873

14. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 55 (0): Directory (b)

ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 55
SECTION 3/ 55 NOT IN DIRECTORY RECORD NUMBER 895

15. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 56 (0): Directory (b)

- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 56 | RECORD NUMBER | 916 |
| SECTION 3/ 56 NOT IN DIRECTORY | | |
16. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 57 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 57 | RECORD NUMBER | 937 |
| SECTION 3/ 57 NOT IN DIRECTORY | | |
17. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 58 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 58 | RECORD NUMBER | 957 |
| SECTION 3/ 58 NOT IN DIRECTORY | | |
18. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 59 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 59 | RECORD NUMBER | 977 |
| SECTION 3/ 59 NOT IN DIRECTORY | | |
19. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 60 (0): Directory (b)
- | | | |
|---|---------------|-----|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 60 | RECORD NUMBER | 997 |
| SECTION 3/ 60 NOT IN DIRECTORY | | |
20. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT= 91 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT= 91 | RECORD NUMBER | 1016 |
| SECTION 3/ 91 NOT IN DIRECTORY | | |
21. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=102 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT=102 | RECORD NUMBER | 1035 |
| SECTION 3/102 NOT IN DIRECTORY | | |
22. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=103 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 3, MT=103 | RECORD NUMBER | 1059 |
| SECTION 3/103 NOT IN DIRECTORY | | |
23. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=104 (0): Directory (b)

- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 3, MT=104 | |
| | SECTION 3/104 NOT IN DIRECTORY | RECORD NUMBER 1071 |
24. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=105 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 3, MT=105 | |
| | SECTION 3/105 NOT IN DIRECTORY | RECORD NUMBER 1082 |
25. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=106 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 3, MT=106 | |
| | SECTION 3/106 NOT IN DIRECTORY | RECORD NUMBER 1091 |
26. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 3, MT=107 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 3, MT=107 | |
| | SECTION 3/107 NOT IN DIRECTORY | RECORD NUMBER 1096 |
27. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 2 (0): Directory (b)
- | | | |
|--|--|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 2 | |
| | SECTION 4/ 2 NOT IN DIRECTORY | RECORD NUMBER 1140 |
28. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 16 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 16 | |
| | SECTION 4/ 16 NOT IN DIRECTORY | RECORD NUMBER 1386 |
29. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 17 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 17 | |
| | SECTION 4/ 17 NOT IN DIRECTORY | RECORD NUMBER 1425 |
30. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 22 (0): Directory (b)
- | | | |
|--|---|--------------------|
| | ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 22 | |
| | SECTION 4/ 22 NOT IN DIRECTORY | RECORD NUMBER 1446 |
31. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 28 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 28 | RECORD NUMBER | 1475 |
| SECTION 4/ 28 NOT IN DIRECTORY | | |
32. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 51 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 51 | RECORD NUMBER | 1504 |
| SECTION 4/ 51 NOT IN DIRECTORY | | |
33. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 52 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 52 | RECORD NUMBER | 1671 |
| SECTION 4/ 52 NOT IN DIRECTORY | | |
34. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 53 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 53 | RECORD NUMBER | 1760 |
| SECTION 4/ 53 NOT IN DIRECTORY | | |
35. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 54 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 54 | RECORD NUMBER | 1849 |
| SECTION 4/ 54 NOT IN DIRECTORY | | |
36. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 55 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 55 | RECORD NUMBER | 1936 |
| SECTION 4/ 55 NOT IN DIRECTORY | | |
37. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 56 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 56 | RECORD NUMBER | 2023 |
| SECTION 4/ 56 NOT IN DIRECTORY | | |
38. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 57 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 57 | RECORD NUMBER | 2108 |
| SECTION 4/ 57 NOT IN DIRECTORY | | |
39. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 58 (0): Directory (b)

- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 58 | RECORD NUMBER | 2191 |
| SECTION 4/ 58 NOT IN DIRECTORY | | |
40. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 59 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 59 | RECORD NUMBER | 2274 |
| SECTION 4/ 59 NOT IN DIRECTORY | | |
41. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 60 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 60 | RECORD NUMBER | 2355 |
| SECTION 4/ 60 NOT IN DIRECTORY | | |
42. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 4, MT= 91 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 4, MT= 91 | RECORD NUMBER | 2436 |
| SECTION 4/ 91 NOT IN DIRECTORY | | |
43. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 5, MT= 16 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 5, MT= 16 | RECORD NUMBER | 2518 |
| SECTION 5/ 16 NOT IN DIRECTORY | | |
44. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 5, MT= 17 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 5, MT= 17 | RECORD NUMBER | 2681 |
| SECTION 5/ 17 NOT IN DIRECTORY | | |
45. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 5, MT= 22 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 5, MT= 22 | RECORD NUMBER | 2761 |
| SECTION 5/ 22 NOT IN DIRECTORY | | |
46. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 5, MT= 28 (0): Directory (b)
- | | | |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=6325, MF= 5, MT= 28 | RECORD NUMBER | 2874 |
| SECTION 5/ 28 NOT IN DIRECTORY | | |
47. Missing a section in directory so your directory is messed up. This error will break everything else
MAT=6325, MF= 5, MT= 91 (0): Directory (b)

• psyche Warnings:

1. Strength function in URR not in agreement with PSYCHE's expectations
FILE 2 / SECTION 151 / ENERGY = 1.00000E+02. STRENGTH FUNCTION IS 1.00000E-05 / STRENGTH FUNCTION 1.00000E-05 / LIES OUTSIDE LIMITS 1.00000E-05 TO 1.50000E-04 (0): URR str. ftn.

```
FILE 2
SECTION 151
ENERGY = 1.00000E+02. STRENGTH FUNCTION IS 1.00000E-05
STRENGTH FUNCTION 1.00000E-05
LIES OUTSIDE LIMITS 1.00000E-05 TO 1.50000E-04
... [1 more lines]
```

2. Non-threshold reaction with Q value differing from PSYCHE's expectations
FILE 3 / SECTION 103 / THE CALCULATED Q 5.22473E+05 DISSAGREES WITH THE GIVEN Q 7.06860E+05 (0): Iffy Q

```
FILE 3
SECTION 103
THE CALCULATED Q 5.22473E+05 DISSAGREES WITH THE GIVEN Q 7.06860E+05
```

• fudge-4.0 Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved / MultiLevelBreitWigner (Error # 0): missingResonanceChannel

WARNING: Missing a channel with angular momenta combination L = 0, J = 1.0 and S = 1.0 for "capture"

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 1): potentialScatteringNotConverged

WARNING: Potential scattering hasn't converged by L=0 at E=100.0 eV, xs[0]/xs[0]=100.0% > 0.1%

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.16%

• fudge-4.0 Errors:

1. Calculated and tabulated Q values disagree.
reaction label 12: n[multiplicity:'2'] + Eu150 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -11105310.89123535 eV vs -7.9342e6 eV!

2. Calculated and tabulated Q values disagree.
reaction label 13: n[multiplicity:'3'] + Eu149 (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -17527342.65945435 eV vs -1.435e7 eV!

3. Calculated and tabulated Q values disagree.
reaction label 14: $n + H1 + Sm150$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -8062898.87612915 eV vs -4.8912e6 eV!

4. Calculated and tabulated Q values disagree.
reaction label 15: $Eu152 + \gamma$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 3134547.105499268 eV vs 6.3079e6 eV!

5. Calculated and tabulated Q values disagree.
reaction label 16: $n + He4 + Pm147$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -1208246.639511108 eV vs 1.9643e6 eV!

6. Calculated and tabulated Q values disagree.
reaction label 17: $H1 + Sm151_s$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -2466440.035308838 eV vs 706860. eV!

7. Calculated and tabulated Q values disagree.
reaction label 18: $H2 + Sm150_s$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -5838332.77520752 eV vs -2.6667e6 eV!

8. Calculated and tabulated Q values disagree.
reaction label 19: $H3 + Sm149_s$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -7567833.878631592 eV vs -4.3951e6 eV!

9. Calculated and tabulated Q values disagree.
reaction label 20: $He3 + Pm149_s$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: -8619920.514221191 eV vs -5.4495e6 eV!

10. Calculated and tabulated Q values disagree.
reaction label 21: $He4 + Pm148_s$ (Error # 0): Q mismatch

WARNING: Calculated and tabulated Q-values disagree: 4687032.697113037 eV vs 7.8576e6 eV!

- **njoy2012 Warnings:**

1. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 16
only mf4/mf5 provided

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 17
only mf4/mf5 provided

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 22
only mf4/mf5 provided

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 28
only mf4/mf5 provided

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
grouppr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

---message from conver---cannot do complete particle production for mt= 91
only mf4/mf5 provided